

[illegible]

<120> METHOD OF DETERMINING EVOLUTIONARY POTENTIAL OF MUTANT
RESISTANCE GENES AND USE THEREOF TO SCREEN FOR DRUG
EFFICACY

<140>

<141>

<150> 60/149,813

<151> 1999-08-19

<160> 17

<170> PatentIn Ver. 2.1

<210> 1

<211> 3801

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plasmid pACSE

<400> 1

cgtatggcaa	tgaagacg	tgagctggtg	atatgggata	gtgttcaccc	ttgttacacc	60
gttttccatg	agcaaactga	aacgttttca	tgcgtctgga	gtgaatacca	cgacgatttc	120
cggcagtttc	tacacatata	ttcgcaagat	gtggcggtgt	acggtgaaaa	cctggcctat	180
ttccctaaag	ggttttattga	gaatatgttt	ttcgtctcag	ccaatccctg	ggtgagtttc	240
accagttttg	atttaaactg	ggccatcatg	tttgacagct	tatcatcgac	tgcacgggtgc	300
accaatgctt	ctggcgctcag	gcagccatcg	gaagctgtgg	tatggctgtg	caggtcgtaa	360
atcactgcat	aattcggtgc	gctcaaggcg	cactcccgtt	ctggataatg	ttttttgctc	420
cgacatcata	acggttcttg	caaataattct	gaaatgagct	gttgacaatt	aatcatccgg	480
ctcgtataat	gtgtggaatt	gtgagcggat	aacaatttca	cacaggaaac	agaccatggc	540
tggtgaccac	gtcgtggaat	gccttcgaat	tcagcacctg	cacatgggac	gtcgacctga	600
ggtaattata	acccggggcc	tatatatgga	tccaattgca	atgatcatca	tgacagatct	660
gcgcgcgatc	gatatcagcg	ctttaaattt	gcgcgatgcta	gctatagtct	tagagggtacc	720
ggttgttaac	gttagccggc	tacgtatact	ccggaatatt	aataggccta	ggatgcatat	780
ggcggccgcc	tgcagctggc	gccatcgata	cgcgctacgtc	gcgaccgcgg	acatgtacag	840
agctcgagaa	gtactagtgg	ccaggaccca	acgctgccc	agatgcgcgg	cgtgcggctg	900
ctggagatgg	cggacgcgat	ggatatgttc	tgccaagggt	tggtttgctc	attcacagtt	960
ctccgcaaga	attgattggc	tccaattctt	ggagtgggtga	atccggttagc	gaggtgccgc	1020
cggcttccat	tcaggctcag	gtggcccggc	tccatgcacc	gcgacgcaac	gcggggaggc	1080
agacaaggta	tagggcggcg	cctacaatcc	atgccaaacc	gttccatgtg	ctcgccgagg	1140

cggcataaat cgccgtgacg atcagcggtc cagtgatcga agttaggctg gtaagagccg 1200
 cgagcgcgac ttgaagctgt ccctgatggg cgtcatctac ctgcctggac agcatggcct 1260
 gcaacgcggg catccccgat ccgccggaag cgagaagaat cataatgggg aaggccatcc 1320
 agcctcgcgt cgcgaacgcc agcaagacgt agcccagcgc gtcggccgcc atgccggcga 1380
 taatggcctg cttctcgcgg aaacgttttg tggcgggacc agtgacgaag gcttgagcga 1440
 gggcgtgcaa gattccgaat accgcaagcg acaggccgat catcgtcgcg ctccagcgaa 1500
 agcggtcctc gccgaaaatg acccagagcg ctgccggcac ctgtcctacg agttgcatga 1560
 taaagaagac agtcataagt gcggcgacga tagtcatgcc ccgcgcccac cggaaggagc 1620
 tgactgggtt gaaggctctc aagggcatcg gtcgacgctc tcccttatgc gactcctgca 1680
 ttaggaagca gcccagtagt aggttgaggc cgttgagcac cgccgcccga aggaatgggtg 1740
 catgcaagga gatggcgccc aacagtcccc cggccacggg gcctgccacc ataccacgc 1800
 cgaaacaagc gtcgatgagc ccgaagtggc gagcccgatc tccccatcg gtgatgtcgg 1860
 cgatataggg gccagcaacc gcacctgtgg cgccgggtgat gccggccacg atgcgtccgg 1920
 cgtagaggat ccacaggacg ggtgtggctg ccatgatcgc gtagtcgata gtggctccaa 1980
 gtagcgaagc gagcaggact gggcggcgcc caaagcggtc ggacagtgtt ccgagaacgg 2040
 gtgcgcatag aaattgcac aacgcatata gcgctagcag cacgccatag tgactggcga 2100
 tgctgtcggg atggacgata tcccgaaga ggcccggcag taccggcata accaagccta 2160
 tgcctacagc atccagggtg acggtgccga ggatgacgat gagcgcattg ttagatttca 2220
 tacacggtgc ctgactgcgt tagcaattta actgtgataa actaccgat taaagcttat 2280
 cgatgataag ctgtcaaaca tgagaattac aacttatatc gtatggggct gacttcagg 2340
 gctacatttg aagagataaa ttgcactgaa atctagaaat attttatctg attaataaga 2400
 tgatcttctt gagatcgttt tgggtctgcg gtaatctctt gctctgaaaa cgaaaaaacc 2460
 gccttgagg gcggtttttc gaaggttctc tgagctacca actctttgaa ccgaggtaac 2520
 tggtctggag gagcgcagtc accaaaactt gtcctttcag ttttagccta accggcgcat 2580
 gacttcaaga ctaactcctc taaatcaatt accagtggct gctgccagtg gtgcttttgc 2640
 atgtctttcc gggttggact caagacgata gttaccggat aaggcgcagc ggtcggactg 2700
 aacggggggg tegtgcatac agtccagctt ggagcgaaat gcctaccggg aactgagtgt 2760
 caggcgtgga atgagacaaa cgccggccata acagcggaat gacaccggta aaccgaaagg 2820
 caggaacagg agagcgcacg agggagccgc cagggggaaa cgcttggtat ctttatagtc 2880
 ctgtcgggtt tcgccaccac tgatttgagc gtcagatttc gtgatgcttg tcaggggggc 2940
 ggagcctatg gaaaaacggc tttgccgcgg ccctctcact tccctgttaa gtatcttct 3000
 ggcattcttc aggaaatctc cgccccgttc gtaagccatt tccgctcgcc gcagtcgaac 3060
 gaccgagcgt agcgagtcag tgagcgagga agcggaatat atcctgtatc acatattctg 3120
 ctgacgcacc ggtgcagcct tttttctcct gccacatgaa gcacttcact gacaccctca 3180
 tcagtgccaa catagtaagc cagtatacac tccgctagcg ctgatgtccg gcggtgcttt 3240
 tgccgttacg caccaccccg tcagttagtg aacaggaggg acagctgata gaaacagaag 3300
 ccactggagc acctcaaaaa caccatcata cactaaatca gtaagttggc agcatcacc 3360
 gacgcacttt gcgccgaata aatacctgtg acggaagatc acttcgcaga ataaataaat 3420
 cctggtgtcc ctgttgatac cgggaagccc tgggccaact tttggcgaaa atgagacgtt 3480
 gatcggcacg taagaggttc caactttcac cataatgaaa taagatcact accgggcgta 3540
 ttttttgagt tatcgagatt ttcaggagct aaggaagcta aaatggagaa aaaaatcact 3600
 ggatatacca ccgttgatat atcccaatgg catcgtaaag aacattttga ggcatttcag 3660
 tcagttgctc aatgtacctc taaccagacc gttcagctgg atattacggc ctttttaaag 3720
 accgtaaaga aaaataagca caagttttat ccggccctta ttcacattct tgcccgcctg 3780
 atgaatgctc atccggaatt c 3801

<211> 5201

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plasmid
pACSE2

<400> 2

cgtatggcaa tgaaagacgg tgagctggtg atatgggata gtgttcaccc ttgttacacc 60
gttttccatg agcaaactga aacgttttca tcgctctgga gtgaatacca cgacgatttc 120
cggcagtttc tacacatata ttcgcaagat gtggcgtggt acggtgaaaa cctggcctat 180
ttccctaaag ggtttattga gaatatgttt ttcgtctcag ccaatccctg ggtgagtttc 240
accagttttg atttaaacgt ggccatcatg tttgacagct tatcatcgac tgcacggtgc 300
accaatgctt ctggcgctcag gcagccatcg gaagctgtgg tatggctgtg caggctcgtaa 360
atcactgcat aattcgtgtc gctcaaggcg cactcccgtt ctggataatg ttttttgccg 420
cgacatcata acggttcttg caaatattct gaaatgagct gttgacaatt aatcatccgg 480
ctcgtataat gtgtggaatt gtgagcggat aacaatttca cacaggaaac agaccatggc 540
tggtgaccac gtcgtggaat gccttcgaat tcagcacctg cacatgggac gtcgacctga 600
ggtaattata acccggggccc tatatatgga tccaattgca atgatcatca tgacagatct 660
gcgcgcgatc gatatcagcg ctttaaattt gcgcagtcta gctatagttc tagagggtacc 720
ggttggttaac gttagccggc tacgtatact ccggaatatt aataggccta ggatgcatat 780
ggcggccgcc tgcagctggc gccatcgata cgcgtacgtc gcgaccgcgg acatgtacag 840
agctcgagaa gtactagttt acgttgacac catcgaatgg cgcaaacct ttcgcggtat 900
ggcatgatag cgcccggaag agagtcaatt cagggtggtg aatgtgaaac cagtaacgtt 960
atacgatgtc gcagagtatg ccggtgtctc ttatcagacc gtttcccgcg tgggtgaacca 1020
ggccagccac gtttctgcga aaacgcggga aaaagtggaa gcggcgatgg cggagctgaa 1080
ttacattccc aaccgcgtgg cacaacaact ggccggcaaa cagtcgttgc tgattggcgt 1140
tgccacctcc agtctggccc tgcacgcgcc gtcgcaaatt gtcgcggcga ttaaactctc 1200
cgccgatcaa ctgggtgcca gcgtggtggt gtcgatggta gaacgaagcg gcgtcgaagc 1260
ctgtaaagcg gcggtgcaca atcttctcgc gcaacgcgtc agtgggctga tcattaacta 1320
tccgctggat gaccaggatg ccattgctgt ggaagctgcc tgcactaatg ttccggcgtt 1380
atttcttgat gtctctgacc agacacccat caacagtatt attttctccc atgaagacgg 1440
tacgcgactg ggcgtggagc atctggtcgc attgggtcac cagcaaactc cgctgttagc 1500
gggcccatta agttctgtct cggcgcgtct gcgtctggct ggctggcata aatatctcac 1560
tcgcaatcaa attcagccga tagcggaaac ggaaggcgac tggagtgcc tgtccggttt 1620
tcaacaaacc atgcaaatgc tgaatgaggg catcgttccc actgcgatgc tggttgcca 1680
cgatcagatg gcgctgggcg caatgcgcgc cattaccgag tccgggctgc gcgttggtgc 1740
ggatatctcg gtagtgggat acgacgatac cgaagacagc tcatgttata tcccgcctc 1800
aaccaccatc aaacaggatt ttcgcctgct ggggcaaacc agcgtggacc gcttgctgca 1860
actctctcag ggccaggcgg tgaagggcaa tcagctgttg cccgtctcac tgggtgaaaag 1920
aaaaaccacc ctggcgccca atacgcaaac cgcctctccc cgcgcgttgg ccgattcatt 1980
aatgcagctg gcacgacagg tttcccgact ggaaagcggg cagtgagcgc aacgcaatta 2040
atgtgagtta gcgcgaattg atctgaattc tcatgtttga cagcttatca tcgactgcac 2100
ggtgcaccaa tgcttctggc gtcaggcagc catcggaagc tgtggtatgg ctgtgcaggt 2160
cgtaaatcac tgcataatc gtgtcgctca aggcgcactc ccgttctgga taatgttttt 2220
tgccgcgaca tcataacggg tctggcaaat attctagtgg ccaggacca acgctgcccg 2280
agatgcgcgc cgtgcggctg ctggagatgg cggacgcgat ggatatgttc tgccaagggt 2340

09640882 "081800

tggttttgcgc	attcacagtt	ctccgcaaga	attgattggc	tccaattctt	ggagtgggta	2400
atccgttagc	gaggtgccgc	cggcttccat	tcaggtcgag	gtggcccggc	tccatgcacc	2460
gcgacgcaac	gcggggaggc	agacaaggta	tagggcggcg	cctacaatcc	atgccaaccc	2520
gttccatgtg	ctcgccgagg	cggcataaat	cgccgtgacg	atcagcggtc	cagtgatcga	2580
agttaggctg	gtaagagccg	cgagcgatcc	ttgaagctgt	ccctgatggt	cgtcactctac	2640
ctgcctggac	agcatggcct	gcaacgcggg	catcccgatg	ccgccggaag	cgagaagaat	2700
cataatgggg	aaggccatcc	agcctcgcgt	cggaacgcc	agcaagacgt	agcccagcgc	2760
gtcggccgcc	atgccggcga	taatggcctg	cttctcgccg	aaacgtttgg	tggcgggacc	2820
agtacgaag	gcttgagcga	gggcgtgcaa	gattccgaat	accgcaagcg	acaggccgat	2880
catcgtcgcg	ctccagcgaa	agcggtcctc	gccgaaaatg	acccagagcg	ctgccggcac	2940
ctgtcctacg	agttgcatga	taaagaagac	agtcataagt	gcggcgacga	tagtcatgcc	3000
ccgcgcccac	cggaaggagc	tgactggggt	gaaggctctc	aagggcatcg	gtcgacgctc	3060
tcccttatgc	gactcctgca	ttaggaagca	gcccagtagt	aggttgaggc	cgttgagcac	3120
cgccgcccga	aggaatggtg	catgcaagga	gatggcgccc	aacagtcccc	cggccacggg	3180
gcctgccacc	ataccacgc	cgaacaagc	gctcatgagc	ccgaagtggc	gagcccgatc	3240
ttccccatcg	gtgatgtcgg	cgatataggc	gccagcaacc	gcacctgtgg	cgccggtgat	3300
gccggccacg	atgcgtccgg	cgtagaggat	ccacaggacg	ggtgtggtcg	ccatgatcgc	3360
gtagtcgata	gtggctccaa	gtagcgaagc	gagcaggact	gggcggcggc	caaagcggtc	3420
ggacagtgtc	ccgagaacgg	gtgcgcatag	aaattgcata	aacgcatata	gcgctagcag	3480
cacgccatag	tgactggcga	tgctgtcgga	atggacgata	tcccgcaaga	ggcccggcag	3540
taccggcata	accaagccta	tgcttacagc	atccaggggtg	acgggtgccga	ggatgacgat	3600
gagcgcattg	ttagatttca	tacacggtgc	ctgactgcgt	tagcaattta	actgtgataa	3660
actaccgcat	taaagcttat	cgatgataag	ctgtcaaaca	tgagaattac	aacttatatc	3720
gtatggggct	gacttcaggt	gctacatttg	aagagataaa	ttgcaactga	atctagaaat	3780
attttatctg	attaataaga	tgatcttctt	gagatcgttt	tggctctgcg	gtaatctctt	3840
gctctgaaaa	cgaaaaaacc	gccttgccagg	gcggtttttc	gaaggttctc	tgagctacca	3900
actctttgaa	ccgaggtaac	tggtctggag	gagcgcagtc	acaaaaactt	gtcctttcag	3960
tttagcctta	accggcgcat	gacttcaaga	ctaactctc	taaatcaatt	accagtggct	4020
gctgccagtg	gtgcttttgc	atgtctttcc	gggttggaact	caagacgata	gttaccggat	4080
aaggcgcagc	ggtcggactg	aacggggggg	tcgtgcatac	agtccagctt	ggagcgaact	4140
gcctaccggg	aactgagtgt	caggcgtgga	atgagacaaa	cgcgggccata	acagcgggaat	4200
gacaccggta	aaccgaaagg	caggaacagg	agagcgcacg	agggagccgc	caggggggaaa	4260
cgccctggat	ctttatagtc	ctgtcggggt	tcgccaccac	tgatttgagc	gtcagatttc	4320
gtgatgcctg	tcaggggggg	ggagccatag	gaaaaaacgc	tttgccgcgg	ccctctcact	4380
tccctgttaa	gtatcttctt	ggcatcttcc	aggaatctc	cgccccgttc	gtaagccatt	4440
tccgctcgcc	gcagtcgaac	gaccgagcgt	agcgagtcag	tgagcgagga	agcggaatat	4500
atcctgtatc	acataattctg	ctgacgcacc	ggtgcagcct	tttttctcct	gccacatgaa	4560
gcacttcact	gacaccctca	tcagtgccaa	catagtaagc	cagtatacac	tccgctagcg	4620
ctgatgtccg	gcggtgcttt	tgccgttacg	caccacccc	tcagtagctg	aacaggaggg	4680
acagctgata	gaaacagaag	ccactggagc	acctcaaaaa	caccatcata	cactaaatca	4740
gtaagtgggc	agcatcacc	gacgcacttt	gcgcgaata	aatacctgtg	acggaagatc	4800
acttcgcaga	ataaataaat	cctggtgtcc	ctgttgatac	cgggaagccc	tgggccaact	4860
tttggcgaaa	atgagacgtt	gatcggcacg	taagaggttc	caactttcac	cataatgaaa	4920
taagatcact	accgggcgta	ttttttgagt	tatcgagatt	ttcaggagct	aagggaagcta	4980
aaatggagaa	aaaaatcact	ggatatacca	ccgttgatat	atcccaatgg	catcgtaaag	5040
aacattttga	ggcatttcag	tcagttgtct	aatgtacct	taaccagacc	gttcagctgg	5100
atattacggc	cttttttaag	accgtaaaga	aaaataagca	caagttttat	ccggccttta	5160
ttcacattct	tgccccgctg	atgaatgtct	atccggaatt	c		5201

<210> 3
 <211> 5201
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plasmid
 pACSE3

<400> 3

```

cgtatggcaa tgaaagacgg tgagctgggtg atatgggata gtgttcaccc ttgttacacc 60
gttttccatg agcaaactga aacgttttca tcgctctgga gtgaatacca cgacgatttc 120
cggcagtttc tacacatata ttcgcaagat gtggcgtggt acggtgaaaa cctggcctat 180
ttccctaaag ggttttattga gaatatgttt ttcgtctcag ccaatccctg ggtgagtttc 240
accagttttg atttaaacgt ggccatcatg tttgacagct tatcatcgac tgcacgggtgc 300
accaatgctt ctggcgctcag gcagccatcg gaagctgtgg tatggctgtg caggtcgtaa 360
atcactgcat aattcgtgtc gctcaaggcg cactcccgtt ctggataatg ttttttgccg 420
cgacatcata acggttctgg caaatattct gaaatgagct gttgacaatt aatcatccgg 480
ctcgtataat gtgtggaatt gtgagcggat aacaatttca cacaggaaac agatcatgac 540
tggtgaccac gtcgtggaat gccttcgaat tcagcacctg cacatgggac gtcgacctga 600
ggtaattata acccgggccc tatatatgga tccaattgca atgatcatca tgtcagatct 660
gcgcgcgatc gatatcagcg ctttaaattt gcgcgtgcta gctatagttc tagaggtagc 720
ggttgttaac gttagccggc tacgtatact ccggaatatt aataggccta ggatgcatat 780
ggcgcccgcc tgcagctggc gccatcgata cgcgtacgtc gcgaccgcgg acatgtacag 840
agctcgagaa gtactagttt acgttgacac catcgaatgg cgcaaacct ttcgcggtat 900
ggcatgatag cgcccggaag agagtcaatt caggggtggtg aatgtgaaac cagtaacgtt 960
atacgatgtc gcagagtatg ccggtgtctc ttatcagacc gtttcccgcg tgggtgaacca 1020
ggccagccac gtttctgcga aaacgcggga aaaagtggaa gcggcgatgg cggagctgaa 1080
ttacattccc aaccgcgtgg cacaacaact ggccgggcaa cagtcgttgc tgattggcgt 1140
tgccacctcc agtctggccc tgcacgcgcc gtcgcaaatt gtcgcggcga ttaaactctc 1200
cgccgatcaa ctgggtgcca gcgtggtggt gtcgatggta gaacgaagcg gcgtcgaagc 1260
ctgtaaagcg gcggtgcaca atcttctcgc gcaacgcgtc agtgggctga tcattaacta 1320
tcogctggat gaccaggatg ccattgctgt ggaagctgcc tgcactaatg ttccggcgtt 1380
atctcttgat gtctctgacc agacacccat caacagtatt attttctccc atgaagacgg 1440
tacgcgactg ggcgtggagc atctggtcgc attgggtcac cagcaaatcg cgctgttagc 1500
gggcccatta agttctgtct cggcgcgtct gcgtctggct ggctggcata aatatctcac 1560
tcgcaatcaa attcagccga tagcggaaacg ggaaggcgac tggagtgcc a tgctccggtt 1620
tcaacaaaacc atgcaaatgc tgaatgaggg catcgttccc actgcgatgc tggttgcca 1680
cgatcagatg gcgctgggcg caatgcgcgc cattaccgag tccgggctgc gcgttggtgc 1740
ggatatctcg gtagtgggat acgacgatac cgaagacagc tcatgttata tcccgcctgc 1800
aaccaccatc aaacaggatt ttcgcctgct ggggcaaac agcgtggacc gcttgctgca 1860
actctctcag ggccaggcgg tgaagggcaa tcagctgttg cccgtctcac tggtgaaaag 1920
aaaaaccacc ctggcgccca atacgcaaac cgcctctccc cgcgcttggt ccgattcatt 1980
aatgcagctg gcacgacagg tttcccgact ggaaagcggg cagtgcgcgc aacgcaatta 2040
atgtgagtta gcgcgaattg atctgaattc tcatgtttga cagcttatca tcgactgcac 2100
ggtgcaccaa tgcttctggc gtcaggcagc catcggaagc tgtggtatgg ctgtgcaggt 2160

```

cgtaaatcac	tgcataatcc	gtgtcgctca	aggcgccactc	ccgttctgga	taatgttttt	2220
tgcgccgaca	tcataacggt	tctggcaaat	attctagtgg	ccaggaccca	acgctgccc	2280
agatgcgccg	cgtgcggctg	ctggagatgg	cggacgcgat	ggatatgttc	tgccaaggg	2340
tggtttgcgc	attcacagtt	ctccgcaaga	attgattggc	tccaattctt	ggagtgggtga	2400
atccgttagc	gaggtgccgc	cggcttccat	tcaggtcgag	gtggccccgc	tccatgcacc	2460
gcgacgcaac	gcggggaggc	agacaaggta	tagggcggcg	cctacaatcc	atgccaaccc	2520
gttccatgtg	ctcgccgagg	cggcataaat	cgccgtgacg	atcagcgggtc	cagtgatcga	2580
agttaggctg	gtaagagccg	cgagcgatcc	ttgaagctgt	ccctgatggg	cgatcatctac	2640
ctgcctggac	agcatggcct	gcaacgcggg	catcccgatg	ccgccggaag	cgagaagaat	2700
cataatgggg	aaggccatcc	agcctcgctg	cgcgaacgcc	agcaagacgt	agcccagcgc	2760
gtcgccgcgc	atgccggcga	taatggcctg	cttctcgccg	aaacgtttgg	tggcgggacc	2820
agtgcgaag	gcttgagcga	gggcgtgcaa	gattccgaat	accgcaagcg	acaggccgat	2880
catcgtcgcg	ctccagcgaa	agcggtcctc	gccgaaaatg	accagagcgc	ctgccggcac	2940
ctgtcctacg	agttgcatga	taaagaagac	agtcataagt	gcggcgacga	tagtcatgcc	3000
ccgcgcccac	cggaaggagc	tgactggggt	gaaggctctc	aagggcacgc	gtcgacgcgc	3060
tcccttatgc	gactcctgca	ttaggaagca	gccagtagt	aggttgaggc	cgttgagcac	3120
cgccgcgcga	aggaatggtg	catgcaagga	gatggcgccc	aacagtcccc	cggccacggg	3180
gcctgccacc	ataccacgc	cgaacaagc	gctcatgtgc	ccgaagtggc	gagcccgatc	3240
ttccccatcg	gtgatgtcgg	cgatataggc	gccagcaacc	gcacctgtgg	cgccggtgat	3300
gccggccacg	atgcgtccgg	cgtagaggat	ccacaggacg	ggtgtggtcg	ccatgatcgc	3360
gtagtcgata	gtggctccaa	gtagcgaagc	gagcaggact	gggcggcggc	caaagcggtc	3420
ggacagtgct	ccgagaacgg	gtgcgcatag	aaattgcac	aacgcataa	gcgctagcag	3480
cacgccatag	tgactggcga	tgctgtcgga	atggacgata	tcgccgaaga	ggccccgcag	3540
taccggcata	accaagccta	tgcttacagc	atccagggtg	acggtgccga	ggatgacgat	3600
gagcgcattg	ttagatttca	tacacggtgc	ctgactgcgt	tagcaattta	actgtgataa	3660
actaccgcac	taaagcttat	cgatgataag	ctgtcaaaca	tgagaattac	aacttatatc	3720
gtatggggct	gacttcaggt	gctacatttg	aagagataaa	ttgcactgaa	atctagaaat	3780
attttatctg	attaataaga	tgatcttctt	gagatcgttt	tggtctgcgc	gtaatctctt	3840
gctctgaaaa	cgaaaaaac	gccttgccag	gcggtttttc	gaaggttctc	tgagctacca	3900
actctttgaa	ccgaggtaac	tggtctggag	gagcgcagtc	acaaaaactt	gtcctttcag	3960
tttagcctta	accggcgcat	gacttcaaga	ctaactcctc	taaatacaatt	accagtggct	4020
gctgccagt	gtgcttttgc	atgtctttcc	gggttggact	caagacgata	gttaccggat	4080
aaggcgcagc	ggtcggactg	aacggggggg	tcgtgcatac	agtccagctt	ggagcgaact	4140
gcctaccggg	aactgagtg	caggcggtga	atgagacaaa	cgccggccata	acagcggaat	4200
gacaccggta	aaccgaaagg	caggaacagg	agagcgcacg	agggagccgc	caggggggaaa	4260
cgccctggat	ctttatagtc	ctgtcggggt	tcgccaccac	tgattttgagc	gtcagatttc	4320
gtgatgcttg	tcaggggggc	ggagccctat	gaaaaaacgg	tttgccgcgc	ccctctcact	4380
tccctgttaa	gtatcttct	ggcatcttcc	aggaaatctc	cgccccgttc	gtaagccatt	4440
tccgctcgcc	gcagtcgaac	gaccgagcgt	agcgagtcag	tgagcgagga	agcggaatat	4500
atcctgtatc	acataattct	ctgacgcacc	ggtgcagcct	tttttctcct	gccacatgaa	4560
gcacttcact	gacaccctca	tcagtgccaa	catagtaagc	cagtatacac	tccgctagcg	4620
ctgatgtccg	gcgggtgctt	tgccgttacg	caccaccccg	tcagttagctg	aacaggaggg	4680
acagctgata	gaaacagaag	ccactggagc	acctcaaaaa	caccatcata	cactaaatca	4740
gtaagttggc	agcatcacc	gacgcacttt	gcgccgaata	aatacctgtg	acggaagatc	4800
acttcgcaga	ataaataaat	cctggtgtcc	ctgttgatac	cgggaagccc	tgggccaact	4860
tttggcgaaa	atgagacgtt	gatcggcacg	taagaggttc	caactttcac	cataatgaaa	4920
taagatcact	accgggcgta	ttttttgagt	tatcgagatt	ttcaggagct	aaggaagcta	4980
aaatggagaa	aaaaatcact	ggatatacca	ccgttgatat	atcccaatgg	catcgtaaag	5040

aacatttttga ggcattttcag tcagttgctc aatgtaccta taaccagacc gttcagctgg 5100
 atattacggc ctttttaaag accgtaaaga aaaataagca caagttttat cgggccttta 5160
 ttcacattct tgcccgcctg atgaatgctc atccggaatt c 5201

<210> 4

<211> 1134

<212> DNA

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Escherichia coli
 plasmid pBR322

<400> 4

atgggtcaaaa cgacgctctg cgccttatta attaccgcct cttgctccac atttgctgcc 60
 cctcaacaaa tcaacgatat tgtgcatcgc acaattaccc cgcttataga gcaacaaaag 120
 atccccgggta tggcgggtggc ggtaatttat cagggtaaac cttattactt tacctggggc 180
 tatgcggaaca tcgccaaaaa gcagcccgtc acacagcaaa cgttgtttga gttagggttcg 240
 gtcagcaaaa catttactgg cgtgcttggt ggcgacgcta ttgctcgagg ggaaatcaag 300
 ttaagcgatc ccacaacaaa atactggcct gaacttaccg ctaaacagtg gaatgggatc 360
 acactattac atctcgcaac ctacactgct ggcggcctgc cattgcaggt gccggatgag 420
 gtgaaatcct caagcgactt gctgcgcttc tatcaaaact ggcagcctgc atggggtcca 480
 ggaacacaac gtctgtatgc caactccagt atcggtttgt tcggcgact ggctgtgaag 540
 ccgtctggtt tgagttttga gcaggcgatg caaactcgtg tcttccagcc actcaaactc 600
 aaccatacgt ggattaatgt accgcccga gaagaaaaga attacgcctg gggatatcgc 660
 gaaggtaagg cagtgcattg ttcgcctggg gcgttagatg ctgaagctta tgggtgtgaag 720
 tcgaccattg aagatatggc ccgctgggtg caaagcaatt taaaaccctt tgatatcaat 780
 gagaaaacgc ttcaacaagg gatacaactg gcacaatctc gctactggca aaccggcgat 840
 atgtatcagg gcctgggctg ggaaatgctg gactggcccg taaatcctga cagcatcatt 900
 aacggcagtg acaataaaat tgcactggca gcacgccccg taaaagcgat tacgccccca 960
 actcctgcag tacgcgcac atgggtacat aaaacagggg cgaccggcgg atttggttagc 1020
 tatgtcgcgt ttattccaga aaaagagctg ggtatcgtga tgctggcaaa caaaaactat 1080
 cccaatccag cgagagtcga cgccgcctgg cagattctta acgctctaca gtaa 1134

<210> 5

<211> 377

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Escherichia coli
 plasmid pBR322

<400> 5

Met Val Lys Thr Thr Leu Cys Ala Leu Leu Ile Thr Ala Ser Cys Ser
 1 5 10 15

Thr Phe Ala Ala Pro Gln Gln Ile Asn Asp Ile Val His Arg Thr Ile
 20 25 30
 Thr Pro Leu Ile Glu Gln Gln Lys Ile Pro Gly Met Ala Val Ala Val
 35 40 45
 Ile Tyr Gln Gly Lys Pro Tyr Tyr Phe Thr Trp Gly Tyr Ala Asp Ile
 50 55 60
 Ala Lys Lys Gln Pro Val Thr Gln Gln Thr Leu Phe Glu Leu Gly Ser
 65 70 75 80
 Val Ser Lys Thr Phe Thr Gly Val Leu Gly Gly Asp Ala Ile Ala Arg
 85 90 95
 Gly Glu Ile Lys Leu Ser Asp Pro Thr Thr Lys Tyr Trp Pro Glu Leu
 100 105 110
 Thr Ala Lys Gln Trp Asn Gly Ile Thr Leu Leu His Leu Ala Thr Tyr
 115 120 125
 Thr Ala Gly Gly Leu Pro Leu Gln Val Pro Asp Glu Val Lys Ser Ser
 130 135 140
 Ser Asp Leu Leu Arg Phe Tyr Gln Asn Trp Gln Pro Ala Trp Ala Pro
 145 150 155 160
 Gly Thr Gln Arg Leu Tyr Ala Asn Ser Ser Ile Gly Leu Phe Gly Ala
 165 170 175
 Leu Ala Val Lys Pro Ser Gly Leu Ser Phe Glu Gln Ala Met Gln Thr
 180 185 190
 Arg Val Phe Gln Pro Leu Lys Leu Asn His Thr Trp Ile Asn Val Pro
 195 200 205
 Pro Ala Glu Glu Lys Asn Tyr Ala Trp Gly Tyr Arg Glu Gly Lys Ala
 210 215 220
 Val His Val Ser Pro Gly Ala Leu Asp Ala Glu Ala Tyr Gly Val Lys
 225 230 235 240
 Ser Thr Ile Glu Asp Met Ala Arg Trp Val Gln Ser Asn Leu Lys Pro
 245 250 255
 Leu Asp Ile Asn Glu Lys Thr Leu Gln Gln Gly Ile Gln Leu Ala Gln
 260 265 270

09640382 081800

Ser Arg Tyr Trp Gln Thr Gly Asp Met Tyr Gln Gly Leu Gly Trp Glu
275 280 285

Met Leu Asp Trp Pro Val Asn Pro Asp Ser Ile Ile Asn Gly Ser Asp
290 295 300

Asn Lys Ile Ala Leu Ala Ala Arg Pro Val Lys Ala Ile Thr Pro Pro
305 310 315 320

Thr Pro Ala Val Arg Ala Ser Trp Val His Lys Thr Gly Ala Thr Gly
325 330 335

Gly Phe Gly Ser Tyr Val Ala Phe Ile Pro Glu Lys Glu Leu Gly Ile
340 345 350

Val Met Leu Ala Asn Lys Asn Tyr Pro Asn Pro Ala Arg Val Asp Ala
355 360 365

Ala Trp Gln Ile Leu Asn Ala Leu Gln
370 375

<210> 6

<211> 1134

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mutant
ampicillin resistance gene AmpC13A

<400> 6

atggtcaaaa cgacgctctg cgccctatta attaccgcct cttgctccac atttgcgtgcc 60
cctcaacaaa tcaacgatat tgtgcatcgc acaattaccc cgcttataga gcaacaaaag 120
atccccgggta tggcggtggc ggtaatttat cagggtaaac cttattactt tacctggggc 180
tatgcggaca tcgctaaaaa gcagcccgtc acacagcaaa cgttggttga gttagggttcg 240
gtcagcaaaa catttactgg cgtgcttggg ggcgacgcta ttgctcgagg ggaaatcaag 300
ttaagcgatc ccacaacaaa atactggcct gaacttaccg ctaaacagtg gaatgggatc 360
acactattac atctcgcaac ctacactgct ggcggcctgc cattgcaggt gccggatgag 420
gtgaaatcct caagcgactt gctgcgcttc tatcaaaact ggcagcctgc atgggctcca 480
ggaacacaac gtctgtatgc caactccagt atcggtttgt tcggcgact ggctgtgaag 540
ccgtctggtt tgagttttga gcaggcgatg caaactcgtg tyttccagcc actcaaactc 600
aaccatacgt ggattaatgt accgcccga gaagaaaaga attacgcctg gggatatcgc 660
gaaggtaagg cagtgcattg ttcgcctggg gcgttagatg ctgaagctta tgggtgtgaag 720
tcgaccattg aagatatggc ccgctgggtg caaagcaatt taaaaccct tgatatcaat 780
gagaaaacgc ttcaacaagg gatacaactg gcacaatctc gctactggca aaccggcgat 840
atgtatcagg gcctgggctg ggaaatgctg gactggccgg taaatcctga cagcatcatt 900

aacggccgtg acaataaaat tgcactggca gcacgccccg taaaagcgat tacgccccca 960
 actcctgcag tacgcgcatac atgggtacat aaaacagggg cgaccggcgg atttggtagc 1020
 tatgtcgcgt ttattccaga aaaagagctg ggtatcgtga tgctggcaaa caaaaactat 1080
 cccaatccag cgagagtgga cgccgcctgg cagattctta acgctctaca gtaa 1134

<210> 7
 <211> 377
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: mutant
 ampicillin resistance protein AmpC13A

<400> 7
 Met Val Lys Thr Thr Leu Cys Ala Leu Leu Ile Thr Ala Ser Cys Ser
 1 5 10 15
 Thr Phe Ala Ala Pro Gln Gln Ile Asn Asp Ile Val His Arg Thr Ile
 20 25 30
 Thr Pro Leu Ile Glu Gln Gln Lys Ile Pro Gly Met Ala Val Ala Val
 35 40 45
 Ile Tyr Gln Gly Lys Pro Tyr Tyr Phe Thr Trp Gly Tyr Ala Asp Ile
 50 55 60
 Ala Lys Lys Gln Pro Val Thr Gln Gln Thr Leu Phe Glu Leu Gly Ser
 65 70 75 80
 Val Ser Lys Thr Phe Thr Gly Val Leu Gly Gly Asp Ala Ile Ala Arg
 85 90 95
 Gly Glu Ile Lys Leu Ser Asp Pro Thr Thr Lys Tyr Trp Pro Glu Leu
 100 105 110
 Thr Ala Lys Gln Trp Asn Gly Ile Thr Leu Leu His Leu Ala Thr Tyr
 115 120 125
 Thr Ala Gly Gly Leu Pro Leu Gln Val Pro Asp Glu Val Lys Ser Ser
 130 135 140
 Ser Asp Leu Leu Arg Phe Tyr Gln Asn Trp Gln Pro Ala Trp Ala Pro
 145 150 155 160
 Gly Thr Gln Arg Leu Tyr Ala Asn Ser Ser Ile Gly Leu Phe Gly Ala
 165 170 175

Leu Ala Val Lys Pro Ser Gly Leu Ser Phe Glu Gln Ala Met Gln Thr
 180 185 190

Arg Val Phe Gln Pro Leu Lys Leu Asn His Thr Trp Ile Asn Val Pro
 195 200 205

Pro Ala Glu Glu Lys Asn Tyr Ala Trp Gly Tyr Arg Glu Gly Lys Ala
 210 215 220

Val His Val Ser Pro Gly Ala Leu Asp Ala Glu Ala Tyr Gly Val Lys
 225 230 235 240

Ser Thr Ile Glu Asp Met Ala Arg Trp Val Gln Ser Asn Leu Lys Pro
 245 250 255

Leu Asp Ile Asn Glu Lys Thr Leu Gln Gln Gly Ile Gln Leu Ala Gln
 260 265 270

Ser Arg Tyr Trp Gln Thr Gly Asp Met Tyr Gln Gly Leu Gly Trp Glu
 275 280 285

Met Leu Asp Trp Pro Val Asn Pro Asp Ser Ile Ile Asn Gly Arg Asp
 290 295 300

Asn Lys Ile Ala Leu Ala Ala Arg Pro Val Lys Ala Ile Thr Pro Pro
 305 310 315 320

Thr Pro Ala Val Arg Ala Ser Trp Val His Lys Thr Gly Ala Thr Gly
 325 330 335

Gly Phe Gly Ser Tyr Val Ala Phe Ile Pro Glu Lys Glu Leu Gly Ile
 340 345 350

Val Met Leu Ala Asn Lys Asn Tyr Pro Asn Pro Ala Arg Val Asp Ala
 355 360 365

Ala Trp Gln Ile Leu Asn Ala Leu Gln
 370 375

<210> 8

<211> 1134

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mutant

ampicillin resistance gene AmpC41A

<400> 8

```

atgggtcaaaa cgacgctctg cgccctatta attaccgcct cttgctccac atttgcgtgcc 60
cctcaacaaa tcaacgatat tgtgcatcgc acaattaccc cgcttataga gcaacaaaag 120
atccccgggta tggcgggtggc ggtaatttat cagggtaaac cttattactt tacctggggc 180
tatgcggaca tcgctaaaaa gcagcccgtc acacagcaaa cgttgtttga gttagggttcg 240
gtcagcaaaa catttactgg cgtgcttggt ggcgacgcta ttgctcgagg ggaaatcaag 300
ttaagcgatc ccacaacaaa atactggcct gaacttacgg ctaaacagtg gaatgggatc 360
tcactattac atctcgcaac ctacactgct ggcggcctgc cattgcaggt gccggatgag 420
gtgaaatcct caagcgactt gctgcgcttc tatcaaaact ggcagcctgc atgggctcca 480
ggaacacaac gtctgtatgc caactccagt atcggtttgt tcggcgcact ggctgtgaag 540
ccgtctgggt tgagttttga gcaggcgatg caaactcgtg tcttccagcc actcaaactc 600
aaccatacgt ggattaatgt accgcccgcga gaagaaaaga attacgcctg gggatatcgc 660
gagggtaagg cagtgcattg ttcgcctggg gcgtagatg ctgaagctta tgggtgtgaag 720
tcgaccattg aagatatggc ccgctgggtg caaagcaatt taaaaccctc tgatatcaat 780
gagaaaacgc ttcaacaagg gatacaactg gcacaatctc gctactggca aaccggcgat 840
atgtatcagg gcctgggctg ggaaatgctg gactggccgg taaatcctga cagcatcatt 900
aacggccgtg acaataaaat tgcactggca gcacgccccg taaaagcgat tacgccccca 960
actcctgcag tacgcgcacg atgggtacat aaaacagggg cgaccggcgg atttggtagc 1020
tatgtcgcgt ttattccaga aaaagagctg ggtatcgtga tgctggcaaa caaaaactat 1080
cccaatccag cgagagtcga cgccgcctgg cagattctta acgccctaca gtaa 1134

```

<210> 9

<211> 377

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mutant
ampicillin resistance protein AmpC41A

<400> 9

```

Met Val Lys Thr Thr Leu Cys Ala Leu Leu Ile Thr Ala Ser Cys Ser
1           5           10           15

```

```

Thr Phe Ala Ala Pro Gln Gln Ile Asn Asp Ile Val His Arg Thr Ile
20           25           30

```

```

Thr Pro Leu Ile Glu Gln Gln Lys Ile Pro Gly Met Ala Val Ala Val
35           40           45

```

```

Ile Tyr Gln Gly Lys Pro Tyr Tyr Phe Thr Trp Gly Tyr Ala Asp Ile
50           55           60

```

```

Ala Lys Lys Gln Pro Val Thr Gln Gln Thr Leu Phe Glu Leu Gly Ser
65           70           75           80

```

Val Ser Lys Thr Phe Thr Gly Val Leu Gly Gly Asp Ala Ile Ala Arg
85 90 95

Gly Glu Ile Lys Leu Ser Asp Pro Thr Thr Lys Tyr Trp Pro Glu Leu
100 105 110

Thr Ala Lys Gln Trp Asn Gly Ile Ser Leu Leu His Leu Ala Thr Tyr
115 120 125

Thr Ala Gly Gly Leu Pro Leu Gln Val Pro Asp Glu Val Lys Ser Ser
130 135 140

Ser Asp Leu Leu Arg Phe Tyr Gln Asn Trp Gln Pro Ala Trp Ala Pro
145 150 155 160

Gly Thr Gln Arg Leu Tyr Ala Asn Ser Ser Ile Gly Leu Phe Gly Ala
165 170 175

Leu Ala Val Lys Pro Ser Gly Leu Ser Phe Glu Gln Ala Met Gln Thr
180 185 190

Arg Val Phe Gln Pro Leu Lys Leu Asn His Thr Trp Ile Asn Val Pro
195 200 205

Pro Ala Glu Glu Lys Asn Tyr Ala Trp Gly Tyr Arg Glu Gly Lys Ala
210 215 220

Val His Val Ser Pro Gly Ala Leu Asp Ala Glu Ala Tyr Gly Val Lys
225 230 235 240

Ser Thr Ile Glu Asp Met Ala Arg Trp Val Gln Ser Asn Leu Lys Pro
245 250 255

Leu Asp Ile Asn Glu Lys Thr Leu Gln Gln Gly Ile Gln Leu Ala Gln
260 265 270

Ser Arg Tyr Trp Gln Thr Gly Asp Met Tyr Gln Gly Leu Gly Trp Glu
275 280 285

Met Leu Asp Trp Pro Val Asn Pro Asp Ser Ile Ile Asn Gly Arg Asp
290 295 300

Asn Lys Ile Ala Leu Ala Ala Arg Pro Val Lys Ala Ile Thr Pro Pro
305 310 315 320

Thr Pro Ala Val Arg Ala Ser Trp Val His Lys Thr Gly Ala Thr Gly
325 330 335

05640882.081800

Ala Trp Gln Ile Leu Asn Ala Leu Gln
370 375

```
<210> 10
<211> 1134
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: mutant
ampicillin resistance gene AmpC21B

<400>	10						
atgggtcaaaa	cgacgctctg	cgctttatta	attaccgcct	cttgctccac	atttgctgcc	60	
cctcaacaaa	tcaacgatat	tgtgcatcgc	acaattacc	cgcttataga	gcaacaaaag	120	
atcccgggta	tggcggtggc	ggtaattttat	cagggtaaac	cttattactt	tacctggggc	180	
tatgcgga	tcgcaaaaa	gcagcccgtc	acacagcaaa	cgttgtttga	gttaggttcg	240	
gtcagcaaaa	catttactgg	cgtgcttggt	ggcgacgcta	ttgctcgagg	ggaaatcaag	300	
ttaagcgatc	ccacaacaaa	atactggcct	gaacttaccg	ctaaacagtg	gaatgggatc	360	
acactattac	atctcgcaac	ctacactgct	ggcggcctgc	cattgcaggt	gccggatgag	420	
gtgaaatcct	caagcgactt	gctgogcttc	tatcaaaact	ggcagcctgc	atgggctcca	480	
ggaacacaa	gtctgtatgc	caactccagt	atcggtttgt	tcggcgca	ggctgtgaag	540	
ccgtctgggt	tgagttttga	gcaggcgatg	caaactcgtg	tcttcgggcc	actcaaactc	600	
aaccatacgt	ggattaatgt	accgcccgc	gaagaaaaga	attacgcctg	gggatatcgc	660	
gaaggtaagg	cagtgcattg	ttcgccctggg	gcgttagatg	ccgaagctta	tggtgtgaag	720	
tcgaccattg	aagatatggc	ccgctgggtg	caaagcaatt	taaaacccct	tgatatcaat	780	
gagaaaacgc	ttcaacaagg	gatacaactg	gcacaatctc	gctactggca	aaccggcgat	840	
atgtatcagg	gcctgggctg	ggaaatgcgg	gactggccgg	taagtccctga	cagcatcatt	900	
aacggcagtg	acaataaaat	tgcactggca	gcacgccccg	taaaagcgat	tacgccccca	960	
actcctgcag	tacgcgcatt	atgggtacat	aaaacagggg	cgaccggcgg	atttggttagc	1020	
tatgtcgcgt	ttattccaga	aaaagagctg	ggtatcgtga	tgctggcaaa	caaaaactat	1080	
cccaatccag	cgagagtcga	cgccgcctgg	cagattctta	acgctctaca	gtaa	1134	

```
<210> 11
<211> 377
<212> PRT
<213> Artificial Sequence
```

<220>

Ser Thr Ile Glu Asp Met Ala Arg Trp Val Gln Ser Asn Leu Lys Pro
 245 250 255

Leu Asp Ile Asn Glu Lys Thr Leu Gln Gln Gly Ile Gln Leu Ala Gln
 260 265 270

Ser Arg Tyr Trp Gln Thr Gly Asp Met Tyr Gln Gly Leu Gly Trp Glu
 275 280 285

Met Arg Asp Trp Pro Val Ser Pro Asp Ser Ile Ile Asn Gly Ser Asp
 290 295 300

Asn Lys Ile Ala Leu Ala Ala Arg Pro Val Lys Ala Ile Thr Pro Pro
 305 310 315 320

Thr Pro Ala Val Arg Ala Ser Trp Val His Lys Thr Gly Ala Thr Gly
 325 330 335

Gly Phe Gly Ser Tyr Val Ala Phe Ile Pro Glu Lys Glu Leu Gly Ile
 340 345 350

Val Met Leu Ala Asn Lys Asn Tyr Pro Asn Pro Ala Arg Val Asp Ala
 355 360 365

Ala Trp Gln Ile Leu Asn Ala Leu Gln
 370 375

<210> 12

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 12

ggggggtggc catcatgttt gacagcttat catcg

35

<210> 13

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 13
caggctgaaa atcttctctc atc

23

<210> 14
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 14
tcacccggct cgtataatgt gtgga

25

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 15
atcgcggtccg ccattctccag

20

<210> 16
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 16
aaaaccatgg tcaaaacgac gctct

25

<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 17

gttgggtcct ggccactagt acttc

25

09640832-031300